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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/802,848	03/18/2004	Yoshitaka Sasaki	110796.01	5851
25944	7590	09/15/2004	EXAMINER	
OLIFF & BERRIDGE, PLC P.O. BOX 19928 ALEXANDRIA, VA 22320			OMETZ, DAVID LOUIS	
			ART UNIT	PAPER NUMBER
			2653	

DATE MAILED: 09/15/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/802,848

Applicant(s)

SASAKI ET AL.

Examiner

David L. Ometz

Art Unit

2653

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-5 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-5 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 3/18/04.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_.

Art Unit: 2653

1. The disclosure is objected to because of the following informalities: the continuing data on page 1 should be updated to include the abandoned status of parent case 09/970786.

Appropriate correction is required.

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 1, 2, 5 are rejected under 35 U.S.C. 102(e) as being anticipated by Otsuka et al (US Pat Pub 2001/0019467). Otsuka et al shows a slider in figure 2 that has:

As per claim 1, a slider "S" of a thin-film magnetic head comprising: a medium facing surface that faces toward a recording medium 71; a substrate 10 having a first surface that faces toward the recording medium and is located farther from the recording medium than the medium facing surface; and a second surface (shown by "G" in figure 2) that meets the first surface; a thin-film magnetic head element 11 located near the second surface of the substrate and near the medium facing surface; an insulating portion surrounding the thin-film magnetic head element and having a surface that constitutes a part of the medium facing surface; and a medium facing layer 64 located adjacent to the first surface of the substrate and having a surface that constitutes another part of the medium facing surface (the medium facing surface having convex/concave surfaces as per claim 2), wherein: the substrate 10 is made of mainly of aluminum oxide and titanium carbide which has a hardness greater than that of the insulating portion alumina, and as the substrate and the medium facing layer are compared in hardness, the medium facing layer

(diamond-like carbon) has a hardness closer to that of the insulating portion of alumina, see paragraphs 98, 99, 106, 114, and 118.

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 1, 2, 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over JP 9-63027 in view of Saito et al (US Pat 6404592). JP'027 shows a slider of a thin-film magnetic head comprising: a medium facing surface that faces toward a recording medium; a substrate 22 made of aluminum oxide and titanium carbide having a first surface that faces toward the recording medium and is located farther from the recording medium than the medium facing surface; and a second surface that meets the first surface (that surface to which protective film 28 is attached); a thin-film magnetic head element 30 located near the second surface of the substrate and near the medium facing surface; an insulating portion 28 surrounding the thin-film magnetic head element and having a surface that constitutes a part of the medium facing surface; and a medium facing layer 34 located adjacent to the first surface of the substrate and having a surface that constitutes another part of the medium facing surface, and the medium facing layer is made of diamond-like carbon. However, JP'027 is silent as to the material of the insulating layer 28 (in this case alumina) which would then inherently meet the following claim limitations that the substrate 22 would have a hardness greater than that of the insulating portion 28, and as the

Art Unit: 2653

substrate and the medium facing layer are compared in hardness, the medium facing layer of DLC has a hardness closer to that of the alumina insulating portion 28.

Saito et al shows a slider in figure 1B that has an insulating layer 8 made of alumina. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to make the insulating layer 28 of JP'027 out of alumina as taught by Saito et al as doing this would permit the magnetic head to be well insulated by the excellent insulating material alumina. As alumina is typically used in the formation of the thin film magnetic head, the use of alumina as the insulating film 28 would also ease manufacturing.

6. Claims 3 and 4 are rejected under 35 U.S.C. 103(a) as being unpatentable over JP'027 in view of Saito et al as applied to claims 1, 2, 5 above, and further in view of Hipwell et al (US Pat Pub 2001/0030835). JP'027 shows a slider with a DLC coating on a substrate made of aluminum oxide and titanium carbide while Saito et al shows a magnetic head slider with an insulating layer made of alumina as noted above. However, neither discloses the use of alumina as the medium facing layer (i.e. substituting alumina for the DLC coating in JP'027) so that the main material of the insulating portion and the material of the medium facing layer are the same (i.e. alumina). Hipwell et al shows a slider in figure 4 and 8 that uses a coating of either DLC or alumina in order to present a smooth and wear resistant coating facing the magnetic disk (see paragraph 26). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to replace the DLC coating of JP'027 with one of alumina as taught by Hipwell et al as doing this would provide the slider with increased impact energy absorption due to alumina being less hard than DLC as taught by Hipwell et al in paragraph 26.

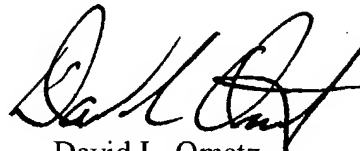
Art Unit: 2653

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The references cited all show magnetic head sliders with coatings on the air bearing surface side of the slider.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to David L. Ometz whose telephone number is (703) 308-1296. The examiner can normally be reached on M-W, 6:00-4:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, William Korzuch can be reached on (703) 305-6137. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



David L. Ometz  
Primary Examiner  
Art Unit 2653

DLO  
9/13/04